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Journal of the Society of Arts.

FRIDAY, FEBRUARY 18, 1859.

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EXHIBITION OF 1861.

The following letter has been addressed by Sir Cusack P. Roney to the Chairman of Council :—

London, Feb. 16, 1859.

Sir,—Referring to our recent conversation on the subject of the Exhibition of 1861, I desire to convey to you, by letter, my conviction that it cannot fail to attract a number of foreigners to this country, who would not have thought of coming here in 1851.

Whatever the statistics of the past may show, they are, in my mind, almost valueless as affording indications of what may be done if a large and comprehensive system for attracting visitors to us from all parts of the world, in 1861, be carried into effect.

I will give you my reasons.

Since 1851 various railways on the Continent, converging more or less towards this country, have been opened, and several others of great importance, both in respect of shortening existing routes and of opening new districts, will be completed this and next year.

Besides, the continental railways have now learned to appreciate through-booking, return-tickets, and excursion traffic at reduced rates, which they would not look at a few years back.

I have the proof of this within my personal knowledge. I was engaged last year, when it was understood that the *Great Eastern* was to run to Portland, in the United States, to make arrangements for through, return and excursion-tickets for the passengers by her. The system was to extend not only through the United Kingdom, but also through France, Switzerland, Germany, and Belgium. In no case was there any difficulty interposed by the numerous railway companies with which I communicated, and considerable facilities and reductions were offered by some of them. Therefore, what was agreed to in the case of this ship would, beyond all doubt, be approved on the more extensive system.

The case of our own railways affords abundant proof of travelling development since 1851. The total number of passengers conveyed on them that year was 85 millions; in 1857 there were about 140 millions; and these numbers are constantly on the increase, at a rate of proportion immensely beyond the additional mileage opened each year.

You can now travel from London to Aberdeen, a distance of nearly 600 miles, in 16 hours; and you can go by railway as far north as Inverness. In 1851 the railways did not extend beyond Edinburgh and Glasgow; and it required 17 hours to reach these places from London.

Owing to the expected completion of the new railway now constructing between London and Dover, and to the opening of sections by which two or three of the *détours* now existing between Calais and Paris will be cut off, the short sea-passage journey between the capitals of France and England will, in the autumn of next year, be effected in ten hours, and at a cost, for a first-class passenger, nearly £1 less than at present.

In 1861 the communication between London and Dublin will be completed twice a day each way, in eleven hours and a quarter, under penalties of £1 12s. a minute for all avoidable delays beyond that time, and at fares about 30 per cent. cheaper than they were in 1851. At that time the railway system was only beginning to be developed in Ireland. By the end of next year, it will be extended almost to its furthest western, northern, and southern limits.

As respects the American continent, the number of persons who come to Europe every year is largely on the increase, especially in steamers. In 1851 there were not more than 75 steam passages from America to Europe. Yet, in last year, with all its commercial depression, there were upwards of 150. During this year there will be nearly 250 (the fares, *at least*, 30 per cent. cheaper than in 1851), and I have not the smallest doubt that there will be, on the average of 1861, a first-class steamer leaving Europe for the United States or Canada, and a similar steamer leaving Canada or the United States for Europe, six times a week. In the summer months there will be an excess of this quantity; in winter below it.

Now there are complete railway systems extending from New York, Boston, Portland and Quebec, the ports for the Atlantic steamers, as far west as the Missisippi, and beyond it. In 1851 they did not extend beyond a third of this distance from New York or Boston, and there was no railway from either Portland or Quebec.

London is at present only 30 to 35 days from our chief cities of India, and there is now a weekly communication. In 1851 it was monthly, in about 45 days. Australia is about 50 days as compared with 100 in 1851. By the advances in steam navigation, the passages to and from our West Indian colonies have been diminished by nearly a third of what they were in 1851. We now have well-organised steam communication to South America, which did not exist in 1851. The same as regards our African colonies.

In short, look to what part of the world we may, we see increased facilities of communication. Every one of these tends towards England, and of necessity towards its great metropolis. I therefore think that as regards facilities, without saying a word on the increased desire of every one for travel, or on the reduction of fares which has taken place almost universally, sufficient has been said to prove that the statistics of the past cannot form a real criterion as to what may be expected if the Exhibition of 1861 have in it—as I believe it can have—features every whit as attractive as, though differing in many respects from, its great predecessor of 1851.

Let me suggest that the traffic arrangements for this Exhibition be begun in ample time. Minute, varied, as well as complicated internal organization will be necessary, so that everything may be clear, simple, and explicit as regards the public. Coupled with this business must be a good system of lodging arrangements for the accommodation of the strangers whilst they are in London. But your own experience on this matter renders it unnecessary for me to do more than refer to it.

Believe me,
Yours faithfully,
C. P. RONEY.

C. Wentworth Dilke, Esq., Chairman of the
Council of the Society of Arts.

EXAMINATIONS, 1859.—LOCAL BOARDS.

The following Local Boards have been appointed since the last announcement :—

For Bradford, Yorkshire.

Rev. W. R. Smith, M.A., Hanover-square, Bradford, *Chairman*.
Mr. John Henry Bell, M.R.C.S., Westgate, Bradford.
Rev. J. R. Campbell, M.A., Horton-road, Bradford.
Mr. Thos. Clark, Trafalgar-street, Bradford.
Rev. H. B. Creak, M.A., Manningham, Bradford.
Mr. J. D. Crebbin, Chapel-street, Bradford.
Rev. D. Fraser, LL.D., Principal of Airedale College, Bradford.
Rev. S. G. Green, B.A., Shipley, Bradford.
Mr. Wm. Guy, Marborough-road, Bradford.

Mr. James Hanson, 51, Hanover-square, Bradford.
Mr. J. M. Jaques, Trafalgar-street, Bradford.
Mr. Edward Kenion, Oak-lane, Manningham, Bradford.
Mr. James Law, Claremont, Bradford.
Mr. Chas. Lund, Northfield-place, Manningham, Bradford.
Mr. T. J. Newboult, Borough-rate Collector, Bradford.
Rev. J. H. Ryland, Cliffe-villas, Manningham, Bradford, President of the Mechanics' Institute.
Mr. A. Smith, 3, Sawrey-place, Bradford.
Mr. Samuel Smith, 23, Bedford-street, Bradford.
Mr. M. H. Walls, 66, Victoria-street, Bradford, *Secretary*.

The Preliminary Examination by this Board is fixed for Thursday, March 31st.

For the London Domestic Mission.

Rev. John Browne, 30, Linton-street, New North-road.
Mr. F. W. Gibson, 25, Haverstock-hill.
Mr. J. M. Wade, 45, Lincoln's-inn-fields, *Secretary*.

For Waterford.

Mr. H. Baschet.
Mr. David Keogh.
Mr. J. C. Walshe.
Mr. P. D. Walshe.
Rev. J. Wilshire.

ELEVENTH ORDINARY MEETING.

Wednesday, Feb. 16, 1859.

The Eleventh Ordinary Meeting of the One Hundred and Fifth Session was held on Wednesday, the 16th inst., the Lord Bishop of London in the chair.

The following candidates were balloted for and duly elected members of the Society:—

Chisholm, John
Dawson, Charles, F.R.S.
Langley, John Newton
Reynolds, Samuel Wm.

The Paper read was—

ON THE SOCIETY OF ARTS' UNION OF INSTITUTES, AND THE EXAMINATIONS CONNECTED THEREWITH.

By Harry Chester, V.P., late Assistant-Secretary of the Committee of Council on Education.

The Society's "Union of Institutes" was one of the results of the Great Exhibition of 1851.

Originated by this Society, and consummated by the Royal Commission, with general applause, that grand international inquest into the life and manners of the industry of the world was designed to promote the interests of "Arts, Manufactures, and Commerce;" but, being by design an Exhibition of the results of the industry of all nations, it could not fail to be in effect an exhibition of the results of their industrial instruction and education; and, among the many valuable lessons which we learned in Hyde-park, in that memorable year, there was none more logically drawn from a comparative view of the British and foreign contents of the palace than this, that, if our arts, manufactures, and commerce were to be maintained in prosperity, the education of our countrymen must be effectually improved by instruction in art, and in science, as well as in literature and religion.

The acceptance of this lesson was immediately seen in a multiplicity of proposals of new schemes and new institutions for industrial instruction. Almost all of these proposals ignored the institutions that already existed having similar aims, or condemned them as hopeless failures. There were, however, already in action, in nearly all of the towns ,and in many large villages, a great number of Mechanics' Institutes, Athenæums, Lyceums, and other similar bodies, essentially popular in their origin, objects, and management, which had been established by the people themselves, and professed to instruct the people in literature, science, and art; and it was but reasonable that an attempt should be made to ascertain whether it was really necessary that new creations should supersede those institutions, or whether they might not be so strengthened and improved as to play at least a useful part in the great advance that was to be made in their own proper work, the industrial instruction of the industrial classes.

The Institutes were too generally feeble, it is true; but was it not possible to strengthen them? They were generally isolated; but might they not be advantageously combined? They had no connexion with the great central associations which, under national auspices, were pursuing the objects of literature, science, and art; but was this defect incurable? Might not the Institutes be made more practical in their aims? and, without ceasing to furnish amusement, might they not become useful places for the systematic instruction of adults?

Questions such as these were proposed, in Nov. 1851, to the Council of this Society, by the President of a Literary and Scientific Institution, who, not himself at that time a member of the Society of Arts, had conceived that it might form the nucleus of a General Union of Institutes. The Council entertained the proposals, so far as to refer them by circular letters to the consideration of the Institutes; and the result was the creation of the Union on the 18th of May, 1852.

The Union at present comprises, in England and Wales 295 Institutions and 3 Chambers of Commerce; in Scotland 10 Institutions; in Ireland 4; in the Colonies 14; total, 326 Institutions. In addition to these there are between 60 and 70 "Local Boards," of which I shall speak by and bye. The returns of these Boards are not complete, but they will probably amount, when the Examinations are held in May next, to between 70 and 80. Some which I have counted as single Institutions are, in fact, large Unions of Institutions, ramifying throughout counties, and penetrating into the smallest villages.

Towards defraying the expenses of the Union, each Institute is charged with a member's subscription, two guineas a-year, to the Society. This payment may be made either by the Institute or by its President. In the latter case the President, besides bringing his Institute into the Union, without further payment, becomes himself a Member of the Society of Arts. There are also liberal arrangements by which very small Institutes, classes for the instruction of adults, libraries, and even isolated students, in villages, derive advantages from the Union.

Here then is a novel Association: a Metropolitan Society in close alliance and co-operation with a large number of kindred, but independent, Societies established in all parts of the kingdom. We ought to see considerable results; but, in estimating them, we must bear in mind a principle of essential importance. The object of the alliance was, not that the Society should govern the Institutes, or impose its own views upon them, or reform them after some uniform model, but rather, that the Society should give to them such aid as might develope the natural growth of their own internal life, and stimulate and supplement —not supersede—their efforts at self-improvement.

By annual and other Conferences between the Society and Representatives of the Institutes, by our weekly *Journal*, and by constant correspondence, the experience and information of the Society and of the individual Institutes are rendered available to all of them.

A very large number of them have agreed to an interchange of privileges; *i.e.*, a member of an Institute, being temporarily in the neighbourhood of another Institute, may obtain at that other, without payment, the privileges of membership.

This Society invites to its own Exhibitions and Meetings the members of the Institutes in the Union.

The Society, from time to time, prepares and supplies to the Institutes a detailed Register of Lecturers, paid and unpaid, their subjects, terms, and all other particulars. Books of all kinds, maps, and philosophical apparatus are obtained by the Institutes through the Society, at greatly reduced prices.

The Society circulates, on loan, for Exhibition, collections of specimens of photography, nature printing, chromo-lithography, and other articles: and several of the Institutes have agreed to interchange specimens of natural history, of manufactures, &c., for their Museums.

In 1854, the Literary and Scientific Institutions Act,* 17th and 18th of Vict. cap. 112, was obtained at the instance of the Society of Arts. This Act is, in fact, a Charter for Mechanics' Institutes and other similar bodies. Its provisions, little known, but of great importance, apply to "every Institution for the promotion of science, literature, the fine arts, adult instruction, useful knowledge, libraries, reading rooms, museums and galleries of works of art, collections of natural history, mechanical and philosophical inventions, instruments, or designs."

Long ago the School Sites Acts had created peculiar facilities for the procuring and settling of sites for elementary and normal schools; but nothing of the kind had been done for Institutes until the Act of 1854 was obtained. It extends to Institutes all, and more than all, of those facilities which had previously been given by the School Sites Acts to schools.

Any interest of any kind in any quantity of land not exceeding one acre, whether built on or not, may now be conveyed by a simple and inexpensive form to trustees for any one or more of the purposes to which the Act is applicable.

The conveyance may be either to individual trustees—in which case a simple and inexpensive mode of renewing the trustees is made available—or, which is much better, to corporate trustees, in which case the trusteeship or legal estate is perpetually sustained without the execution of any further deeds or any other proceedings whatever. The property is vested in the governing body of the Institution for the time being. Powers are given to sue and be sued in the name of an officer; to make and enforce bye-laws; to recover subscriptions in arrear, and the value of property injured or detained contrary to the rules; to proceed against purloining or embezzling members as against strangers; and (subject to certain provisions for appeal) to vary the objects of the Institutions. Those who are best acquainted with the Institutes, are best able to appreciate these enactments.

In another matter of legislation the Society has been less successful. At the request of the Institutes the Council has made several attempts to procure an amendment of the Act of 6 and 7 Vict., cap. 36, which professes to exempt Literary and Scientific Institutions from the payment of local rates. Discontent and litigation have been occasioned by the uncertainty and inequality of the law; and the Institutes have urgently demanded its amendment. The more, however, the subject of this law has been discussed, the less Parliament has shown a disposition to extend the principle of exemption. In 1857, Mr. Hutt's proposal to amend the act was summarily rejected by a large majority; and, in 1858, a committee strongly recommended that all exemptions should be discontinued, except those in favour of royal palaces occupied by her Majesty, places of public worship, burial-grounds, turnpikes, parochial roads, and public bridges. If any exemptions whatever are continued, except those in respect of her Majesty's residences, the Institutions will think it hard that the privilege, uncertain as it has been, which they have enjoyed, should now be withdrawn. If the legislature is desirous to benefit our Institutes, let the abominable nine-lived duties on paper be at once abolished; let the evening classes for the instruction of adults at Institutes have the option of being treated as favourably as the evening classes at the elementary schools under inspection; let the public service be more freely opened to the candidates who are successful in our Examinations; let the legislative electoral franchise be extended to all the holders of certificates from the Board of Examiners; and, if you will, let powers be given to the ratepayers everywhere to tax themselves, if they think fit, for the support of their own Institutes and Local Boards, or for substantial additions to the honorary rewards.

Our Society is too often supposed to be merely a Society for the promotion of the fine arts. It is, as you know, a Society "for the Encouragement of Arts, Manufactures, and Commerce," the term "arts" including both the fine and the industrial arts. The Society always entertained the idea that theory and practice must be combined to produce useful inventions; and that all improvement in arts, manufactures, and commerce must be grounded in improved education. It was not, however, until the Great Exhibition had gauged and made public our need of improved education, and particularly of secondary instruction, nor until our union with the educational bodies was formed, that the Society could act with effect in the improvement of commerce, arts, and manufactures, by improving the knowledge on which their success must depend.

The Educational Examinations, which we have instituted, are designed to give life and efficient direction to an extensive system of industrial instruction, founded on the revelations of 1851. They are not aimed at children. We leave them to existing agencies; but we hope to strengthen those agencies by enhancing the popular appreciation of education; by requiring a considerable amount of primary knowledge as a condition of admission to our Examinations; and by supplying to primary education its natural and necessary complement in a liberal scheme of secondary instruction. We have a deep interest in the primary school; because it is clear that the secondary, or industrial, instruction with which this Society is concerned should be preceded by elementary instruction of the best possible kind.

Many persons, especially legislators, speak of public education as if nothing or little had been done for it. Doubtless much remains to be done, particularly in reference to that part of the population which is neither technically "pauper" nor independent. Their children are the bane of the National School, keeping down the rate of the school fee below the eleemosynary point, because the managers are unwilling to adopt such a reasonable scale of charges as the independent labourer might readily pay, but these semi-paupers cannot pay. It is much to be wished that this great evil were seriously attacked. By the 18th and 19th Vic., cap. 34, Boards of Guardians are authorised to pay for the schooling of the children of persons in receipt of out-door relief; but this Act has not been effectually operative. What seems to be needed is, that, under careful provisions to guard against abuse, provisions which I fear must be conceived somewhat in a spirit of distrust, the ratepayers of a parish may have some machinery for dealing with the cases of these all but paupers, and charging the rates with their school fees, in whole or in part, on proof of their inability to pay them, and without reference to the receipt of any other legal relief. Provisions of this kind exist in Scotland, in Belgium, in Switzerland, and elsewhere; and, if they could be introduced here, a reasonable rate of school fee might be adopted; and the financial difficulties of elementary schools would be greatly, if not effectually, relieved.

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* The Lord of a Manor in respect of the waste or common lands; the authorities of the Duchies of Lancaster and Cornwall in respect of the property of the Duchies; the cestuique trust, or tenant for life, without his trustees; the guardian or curator of an infant; the Committee of a Lunatic; a clergyman in respect of his glebe; indeed, any corporation, ecclesiastical, or lay, sole or aggregate; any officers, justices of the peace, trustees or commissioners for public, ecclesiastical, parochial, charitable, or other purposes or objects; subject to certain reasonable conditions set forth in the Act, may convey any quantity of their land not exceeding one acre for each Institution.

Taking, however, as a whole, the schools rapidly increasing in number which receive annual grants from the Government, I believe that they are the best elementary schools in the world, and not very far from being as good as it is possible for elementary schools to be in this country, where the demands of daily life in the competitions of industry are such that the children cannot be retained at the day school beyond a very early age. We must do what we can to keep up the average of the school-age, because otherwise it will be beaten down lower and lower; but we must make up our minds that we cannot detain our poor children at the day school long enough to do more than lay there a foundation for their future education. We can only prepare them there for their education afterwards elsewhere. The poor man's child is taken from school at the age, or rather before the age, when the rich man's son goes to school. What shall we do then for the poor man's child to save him from the danger of losing the little that he has learned—from feeling that he has been merely mocked with a view of the keyhole of knowledge without a chance of attaining the power to pass within its gates?

The great desideratum seems to be to provide means and motives for the continuance of instruction after the boys and girls have left their elementary schools. This seems to be the keystone of the whole construction of National Education. If we can provide sufficient facilities and inducements for the instruction of adults, we shall place our arts, manufactures, and commerce, on a sound foundation; and we shall secure the interests of religion and morality; because an instructed people will not suffer their children to remain without education; and because, happily, our national education, as far as we have one, is inseparably connected with religion. This, then, is the object of the Examinations instituted by the Society of Arts, to provide means and motives for the continued instruction of adults.

Never forgetting that the Union was formed, not to supersede, but to promote and supplement the action and self-government of the Institutes, the Society invites them to assume a large share of authority and responsibility in the Examinations. The Institutes in different places appoint "Local Boards" to hold a "Previous Examination" of all their candidates in handwriting, spelling, English grammar and composition, elementary arithmetic, and in such of the special subjects as they may respectively desire to be examined in by the Society's Board of Examiners. The names, subjects of examination, and other particulars of the candidates "passed" by the Local Boards, are then communicated by those Boards to our Council; our Board of Examiners prepares, and the Council forwards to the Local Boards, the requisite examination papers. They are simultaneously worked by the candidates in the presence of those Boards. The Boards immediately return the worked papers to the Council. The Council refers them to the Board of Examiners for their adjudication; and the result is communicated, with the least possible delay, by the Council, to the Local Boards, and by the Boards to the Institutions and to the candidates. All the precautions that experience can devise are taken to prevent the possibility of any unfairness of any kind, at any stage of the proceedings. While the candidates have the novel advantage of entering into an honourable competition with their fellows in every part of the kingdom, none is compelled to leave the neighbourhood of his home and the scene of his daily labour.

In the worked papers, submitted to the Examiners for adjudication, there is nothing to indicate the names of the candidates. They are designated by numbers alone. The awards are made entirely by the Examiners, with no interference from the Council or from the officers of the Society. The awards include certificates of three classes:—First, or excellence; second, or proficiency; and third, or competency. So far the Examinations are not competitive, *i.e.*, the value of the certificates is positive, depending on the number of marks obtained by each candidate, according to a fixed standard, and not on a comparison with the work of others. But the awards include also prizes,—and here the principle of competition comes in; the prizes are awarded to those who get the highest number of marks in each subject. We thus combine the advantages of two systems. The certificate, which is the enduring record of the man's attainments, depends absolutely upon the amount of his own attainments; and it would be hard if it were otherwise, where there is so much difference in the opportunities of instruction, where the field is so wide and the candidates belong to so numerous a class: but competition seems necessary to induce men to put forth all their strength; and we present the stimulus of prizes to those who get the highest number of marks among the holders of certificates of the first class in each subject.

We have twenty-three subjects, and twenty-three Examiners. The following is a list of the subjects:—

I. Arithmetic.
II. Book-keeping, by Double Entry.
III. Algebra.
IV. Geometry and Mensuration.
V. Trigonometry.
VI. Conic Sections.
VII. Navigation and Nautical Astronomy.
VIII. Statics, Dynamics, and Hydrostatics, Hydraulics, and Pneumatics.
IX. Practical Mechanics.
X. Magnetism, Electricity, and Heat.
XI. Astronomy.
XII. Chemistry.
XIII. Animal Physiology.
XIV. Botany.
XV. Agriculture.
XVI. Political and Social Economy.
XVII. Geography.
XVIII. English History.
XIX. English Literature.
XX. Latin and Roman History.
XXI. French.
XXII. German.
XXIII. Theory of Music.

Drawing is now left out of our list, not because the Council is of opinion that drawing is unimportant, but because the Government has provided in all parts of the kingdom for annual Examinations in this most important art; and it would be an unjustifiable waste of resources for the Society of Arts to iterate the Examinations held by the Government.

Our list of subjects is certainly not meagre. Nothing could be more mischievous than to institute a scheme of industrial instruction, and to circumscribe it within narrow limits. If it be objected that Latin, for example, is unsuited to a scheme of industrial instruction, I ask whether Latin is not useful to the apprentice of the chemist and apothecary, in the business of a printer, of a bookseller and publisher, of a nurseryman and gardener, in museums, and in every division of science, even in its humbler branches. The people themselves may be trusted to determine for themselves, as adults, what they will learn. They will soon know what they want, what helps them forward in their callings, and what interests and recreates their minds in the intervals of labour. The papers set by our Examiners have, however, as far as possible, a practical character; and, though the

Society of Arts prescribes no curriculum of studies, the Committees of the Unions and Institutes and the Local Boards advise, and by advice guide, their students.

The names of our twenty-three Examiners will bear comparison with those of any other Board of Examiners in the kingdom.

In addition to the certificates and prizes, an encouragement of another kind has been opened to the candidates. The late Mr. John Wood, chairman of the Board of Inland Revenue, Lord Granville when Lord President of the Council, and Lord Palmerston and Lord Derby as First Lords of the Treasury, allowed the Council of the Society of Arts to nominate to junior clerkships, or to competitions for junior clerkships, in the public service, some of the candidates that succeeded best in the examinations. Four nominations to compete for appointments were placed last year by Lord Derby at the disposal of the Council. Four prizemen were nominated; one from the Crosby Hall Evening Classes, one from the Young Men's Christian Institute at Leeds, one from the Literary Institution at Lymington, and the fourth from the Mechanics' Institute at Leeds. All four succeeded. Two of them competed for clerkships in the Customs and were placed 1st and 3rd. The other two competed for supernumerary surveyorships of taxes, and they were placed 1st and 2nd. I should be sorry to see the day when the youth of this country were generally looking to the Government for employment; but such a catastrophe is little likely to happen while the service of the Government exhibits only its present inducements; and, if all its minor appointments were thrown open freely, as I think they should be, to public competition, under proper conditions, an undue determination of juvenile ambition towards the public service might easily be prevented by opening in like manner to competition the analogous but better paid appointments of the public companies, of the great commercial establishments, and of private service.

If this principle of competition, which is now the exception, were to become the rule, in making public and private appointments, both the public and private services would be greatly gainers; and public education would become an accomplished fact, instead of tossing in a sea of interminable discussion, in the sickness of deferred hopes. Our object is not so much that individuals may be raised above their class, as that the level of the whole class may be raised; not that ignorant men should become smatterers in abstruse subjects, but that a man should lay a solid foundation in elementary knowledge, and then acquire its appropriate secondary additions: and we believe that, in holding out to him encouragements and rewards for success, we promote an increase, not only of intellectual attainments, but also of energy, perseverance, self-control, and moral habits.

In 1854 the Society of Arts and the Institutes first agreed that their students should be annually examined by a Board appointed by the Society. In 1855, only one candidate, a chimney sweeper, presented himself; and no candidate was examined. The Society had been passive and the Institutes were unprepared. In 1856, 52 candidates underwent Examination. In 1857, in this house 80, and at Huddesfield 140, total 220 candidates underwent Examination. In 1858, when the Examinations were first divided into Previous Examinations by the Local Boards, and Final Examinations by the Society's Board, and when a minimum of the age of candidates, viz., 16, was for the first time fixed, 1107 candidates, at 32 different places, underwent the Previous Examinations, and 288 underwent the Final Examination. In the whole, 394 candidates have received 863 certificates.

Some curious details of the results of the Examinations in 1858 were given by Mr. John Pope Hennessy, in a paper read before the British Association at Leeds. Each candidate who has "passed" the Examination of his Local Board, and desires to undergo the Final Examination of the Society's Board, furnishes the Society with a return containing the following particulars:—His name, age, residence, occupation present or proposed, the Institution with which he is connected, whether he is a student in a class there, the number of years that he was at school, the number of years that have passed since he left school, his father's occupation. I need not point out how important these returns will become in a few years. Mr. Hennessy shows from the Returns of 1858 that, of 310 candidates from whom they were received,

1	candidate	had been	14	years	at school.
7	,,	,,	12	,,	,,
1	,,	,,	11	,,	,,
18	,,	,,	10	,,	,,
21	,,	,,	9	,,	,,
40	,,	,,	8	,,	,,
46	,,	,,	7	,,	,,
47	,,	,,	6	,,	,,
49	,,	,,	5	,,	,,
32	,,	,,	4	,,	,,
22	,,	,,	3	,,	,,
11	,,	,,	2	,,	,,
2	,,	,,	1	,,	,,
13	had been less than		1	,,	,,

Mr. Hennessy shows that, comparing the 129 candidates who had been at school for less than 6 years with the 181 candidates who had been at school 6 years and upwards, the former did better than the latter. He says:—"Although this result is a fact, and, as such, is probably worth volumes of speculations on the theoretical aspect of the question, yet I do not think it can justify any positive conclusion of much value. Should it be confirmed by the experience of future years, and by a still more widely extended inquiry, it may become a question whether Institutional Education —to which, as a matter of course, it is almost altogether owing—ought not to be regarded as a system of popular instruction coming as fairly within the scope of Parliamentary support as the Elementary Education in the Schools under Inspection." I entirely agree with him that we must wait for more information before we found any theory on these returns.

This year, and henceforward, the Examinations will be held, simultaneously, at all places, throughout the Union, in England, Scotland, Ireland, and Wales, wherever there are candidates and a Local Board.

The Final Examinations this year are fixed for Tuesday, Wednesday, Thursday, and Friday, the 17th, 18th, 19th, and 20th of May, from 6 to 9 in the evening.

Any person, not less than 16 years of age, may be examined, on the recommendation of a Local Board, provided that he (or she) has been for three months a member of, or a student of a class in, an Institute united to the Society, and is not a graduate or undergraduate of any of the Universities, a student of a learned profession, a certificated schoolmaster or schoolmistress, nor a pupil-teacher salaried by the Government.

The "Local Boards" were contemplated in 1854, but were not brought into existence until last year, when they played a most important part. It is difficult to overrate the importance of the full development of this new kind of Institution. It springs at the suggestion of this Society from the Institutes themselves, comprehends and represents their interests, and possesses their full confidence. Dealing with the results of the instruction of adults, instead of attempting to define the processes of the education of children, the Local Board knows nothing of the odium theologicum; and, not only without any sacrifice of principle, but, without the least occasion for scrupulous hesitation, comprises the representatives of all classes in society, and of all parties in Church and State.

Merely to sift the Candidates and to admit them to the Final Examination, the work of the Local Board may be done by two or three intelligent persons who possess the confidence of their Institutes; but, in most instances, the Board is a powerful and somewhat numerous body, whose influence upon the education of its neighbourhood cannot fail to be very great indeed.

At the Annual Conference of the representatives of the Institutions in June last, it was agreed that the Local Boards would do well to concern themselves, where their assistance would be welcome, in preparing candidates for Examination, by advising them respecting their studies, and by inspecting the classes from time to time. On the same occasion, also, it was resolved that it would greatly promote the interests of public education, and the success of the Society's Examinations, if the Local Boards should act as administrators of what are now well known to educationalists as "prize schemes" for children between 13 and 16 years of age, so as to induce them to continue their instruction between the time at which they usually leave their elementary schools, and the time at which they become admissable to the Society's Examinations. Many a parent would be induced by the prospect of his child's obtaining a valuable prize, to postpone his withdrawal from the day-school, or to ensure the continuance of his instruction at an evening school or class. The prizes would not be mere prizes, but honours and testimonials. It would be a great advantage to bring into a friendly competition, under the impartial auspices of the Local Boards, the pupils of National, British, and other schools, which have now no opportunities of direct competition, nor of friendly emulation provocative of improvement.

Besides our own general Union of Institutes, there are in Union with us many Provincial Unions of the greatest value, such as the Yorkshire Union of Institutes, the Lancashire and Cheshire Institutional Association, the Union of the Four Northern Counties, the Hants and Wilts Association, the Bucks and Berks Association, the East Lancashire Union, the Sussex Board in aid of the Local Examinations by the Society of Arts and the Universities, and others. The East Lancashire Union, whose President is Sir James Kay Shuttleworth, has been very carefully organised, and has adopted a scheme of well graduated, continuous instruction. The Committee of Council on Education has granted to the managers of this Union an augmentation of salary for a certificated schoolmaster, whose duty it is to act as an organising master to those Institutes, visiting them and teaching at them in turns; and also an augmentation of the salaries of all the uncertificated teachers who teach regularly at the Institutes under the periodical superintendence of the certificated master. This small Union is doing a real work of education. Its area is so limited, that every part of it is under the eyes and within the reach of its Committee of Management, which takes care that the scheme of instruction is effectually carried out. This is very important indeed.

In almost all of the provincial unions examinations are held and certificates and prizes are given independently of ourselves. In May last, at Manchester, 1,000 candidates were examined by the Lancashire and Cheshire Association. The Sussex Board has framed an admirable scheme for the encouragement of candidates. Not only prizes of considerable value are offered, but it is proposed in certain very meritorious cases to grant exhibitions to assist suitable candidates to obtain an university education.

Several of the Provincial Unions were in existence before our Union was thought of; and I know no Provincial Union which has done more for the Institutes than the great Yorkshire Union, which comprises 130 of these bodies, and is, I believe, the Father of Unions.

Besides the prizes which the Society of Arts grants to the successful candidates, the Society grants also prizes to the Institutions whose candidates take the highest prizes, and to the Local Boards whose successful candidates bear the best proportion to the unsuccessful. In 1858, the Institutions that carried off prizes were the Watt Institute at Portsea; the Crosby Hall Evening Classes; the Banbury Mechanics' Institution; the Young Men's Christian Institute at Leeds; the People's College at Sheffield; the Athenæum at Bristol; the Mechanics' Institution at Leeds; and the Literary Institution at Lymington. No Institute can now receive a prize unless the Council is satisfied that the candidate in respect of whom the prize is claimed has received, at that Institute, for three months, systematic instruction in the subject for which he obtained his prize. The Local Boards at Crosby Hall, and at the London Mechanics' Institution, received last year a prize of £10, and a prize of £4.

You have gathered, I hope, from what I have said, that the Society of Arts is engaged in a great educational enterprise. In the last few years, at the suggestion of this Society, there has been growing up somewhat silently a combination of a very peculiar character. It is co-extensive with the United Kingdom, most powerful in the seats of dense population, but operative even in thinly-peopled villages, irrespective of political and theological divisions, springing from the institutions of the working-class, but supported by good men of all classes, having its centre in our own metropolitan Society of Arts, from which an impetus is conveyed to the Provincial Unions, Local Boards, Athenæums, Institutes, People's Colleges, Evening Classes, and even to isolated students; and even now, in the infancy of this Union, large numbers of the working classes have shown themselves ready and anxious to profit by it. Here, then, may we not hope that we have done something to supply our great desideratum in public education? Are there not here provided motives and means for the continued instruction of adults? What we have accomplished, has been accomplished not by the action of the legislature, nor by the Government, but by the union of this independent Society with those independent Institutions of local growth and of popular origin. Does anyone ask how can he contribute to the success of this Union? I reply plainly, "Become a member of the Society of Arts; subscribe to its special fund for prizes; support the Institute or Athenæum of your own neighbourhood; regard our certificates as effectual testimonials when you are called upon to dispense patronage and employment. Explain to those, for whose advantage the Examinations are instituted, how to profit by them." Any member of an Institute in Union with us, whether a student of a class there or not, and any student of a class there, whether a member of the Institute or not, may take advantage of the Examinations.

Much yet remains to be done for the Institutes, and still more by the Institutes for themselves, before they can realize the idea of utility which was in contemplation when the union was proposed. They are not the failures that some persons have supposed them; their legal status and their popular character are much improved; their financial condition is improved; they are very useful as places of amusement—amusement unconnected with public-houses—which is really a primary want in this country, where it seems to have been thought till lately that to make a man religious and wise it was requisite to keep him dull; they are very useful as reading-rooms and news-rooms; their libraries are of great value; they knit together the various classes of society; and they have now entered vigorously, and with capital prospects, upon the work of systematic instruction. Their students are to be counted by thousands. Their great difficulty in the work of instruction is the difficulty of obtaining well qualified teachers. The supply of these is unequal to the demand,—nor likely soon to overtake it. The most competent teachers are those who, having been trained at the Normal Schools, under the inspection of the Committee of Council on Education, are entitled to annual augmentations of salary from the public funds when engaged in inspected schools. These teachers, however, are not available for our Institutes. Sir James Shuttleworth has recently published a statement that the aid which has been given by the Committee of Council to the East Lancashire Union of Institutes, has not been, and is not likely to be, given to other Unions or Institutes; and he has publicly declared that, by the pecuniary advantages recently awarded to evening classes held in day schools which are under inspection, the classes of the Institutes, being debarred from those advantages, will everywhere be placed at a great disadvantage in comparison with those schools; that the latter will receive an extraordinary stimulus, and be rapidly multiplied as successful, and perhaps fatal, rivals to the classes for systematic instruction in the Institutes which are not inspected by her Majesty's Inspectors of Schools.

The friends of the Institutes are not agreed as to the expediency or inexpediency of receiving pecuniary assistance from the Government. For my part I have never been able to satisfy myself that it was expedient for them to receive such assistance in aid of their general purposes. If the Government grants money to the Institutes, it must take security for the best possible application of that money, that is to say, it must inspect them; and inspection, if not control, is influence; and such influence has a strong family likeness to control. Would it be expedient that these popular Institutions, with their lectures, discussions, libraries, reading-rooms, newspapers, and amusements, should be subjected to governmental influence, even in homœopathic doses? I think not. But I see no reason why funds voted by Parliament "for the promotion of public education" should not be applied, in reasonable measure, to the support of the classes for instruction in the Institutes, by allowing the certificated teachers to receive for teaching therein the parliamentary augmentations of their salaries, and by payment of capitation allowances in respect of students who satisfactorily pass the annual "Previous Examinations" of the "Local Boards." The effect of this concession would be that the inspection, which is invaluable in the case of an elementary school for the education of children, would be substituted in the case of adults by a testing of the results of instruction, the test being applied in the presence of her Majesty's Inspector, if his presence be thought necessary to prevent the possibility of a misappropriation of public money, but applied by an authority which is local, public, and independent of the Government.

Sir James Kay Shuttleworth has omitted (I think) to state the grounds on which, with the exception of his own union, the Government restricts its grants to those evening classes which are held in buildings in which day schools under inspection are also held. If these grounds are condemned, the condemnation should attach rather to Parliament than to the Committee of Council on Education. Parliament has shown a marked disinclination to alter the basis of religious compromise on which it has entrusted to the Committee of Council the duty of distributing the Parliamentary grants. It has always been a fundamental rule that, in the schools inspected, the Bible shall be daily read; and, when evening schools were first recognised by the Committee of Council, it was laid down that, to avoid the re-opening of religious controversies, that rule might be held to be sufficiently observed if the evening school were treated as one institution with the day school maintained under inspection in the same building, and under the same management. The question of evening schools and classes has, however, become immensely important; and surely it is almost time for Parliament to distinguish between the education of children and the instruction of adults; and to admit that an adult may very properly receive instruction in mathematics, chemistry, or botany, without being compelled to receive it in an uncomely and uncomfortable apartment where, not he himself, but some small children, unbeknown to him, have heard a portion of Holy Scripture read in the earlier part of the same day. I agree with Sir James Shuttleworth, that it would be a very grave misfortune indeed if the classes at our Institutes were to be damaged by a general setting up of rival classes for adults in connection with the inspected elementary schools for children. From such a cause the elementary schools would be the first to suffer. If their school-rooms are to be occupied from early morn to dewy night, they cannot be properly cleaned and ventilated; and they who have the charge of the buildings, almost invariably the schoolmaster and schoolmistress, must suffer from the additional responsibility and restraint, even if they have not in addition any actual labour, thus cast on them. Moreover, the fittings, the benches, and desks, which are suited to the children of the day-school, are totally unfitted for the long legs and broad dimensions of adults. Two sets of fittings cannot occupy the same room. There will be a compromise of sizes, and both parties will be inconvenienced. But it is a graver objection that the formal connexion with a particular religious congregation, which is a common feature of the management of the day-school, and produces excellent results in the religious education of the children, is uncalled for, and not calculated to be useful, in respect to the instruction of adults. With every day school let us connect an evening school for the elder children; but we may impair the independence and robustness of character which we wish to see in our countrymen if we treat them, adults, as children, and send them for their industrial instruction to schools, where neither they nor their fellows partake of the power of government, instead of to their own Institutes and Colleges, which they themselves have established, and which they and their fellows take part in governing.

It may be objected that in the day schools, where the Bible is read, there are religious influences, a sort of religious atmosphere, which would be wanting in the Institutes; and that it would be better for the interests of religion to continue the existing restriction. I entirely dissent from this view. There are no grounds whatever for imputing to those who are connected with Institutes an indifference to the highest and best interests of man; and much harm is done to the cause of religion among working men, when they find its name brought into requisition, in order to impose on themselves restrictions which are not imposed upon any other class in the community. The more a man is reputed to be actuated by genuine religion, whether he be a clergyman or a layman, the more influence he will have among the other managers and members of an institute, if only he have a fair share of common sense and general knowledge, and be modestly desirous to co-operate with them as a brother among brethren, instead of to rule them as a superior.

A word now about other matters. In every town, in every large village, I conceive that there ought to be, and that there might be, an Institute not only doing what has been here mentioned, but promoting progress and improvements of all kinds. Everywhere there is an urgent want of some body whose acknowledged function it is systematically to investigate and to diffuse information respecting objects of practical utility. If the Institutes would generally undertake this duty, they would raise their own position by doing a great deal of good, and would gather to themselves many helpers who now stand aloof. I conceive that each Institute should be, in operation, an Institution for the promotion of social science. With great advantage they might deal, by inquiry, discussion, and publication, with many of the subjects which this Society deals with and promotes. Many of the Institutes have discussed and expressed to Parliament their conclusions respecting our old enemy, the duty on paper. Some of them have discussed the question of a small parcels post; others the laws of patents; others allotment gardens for the poor; others the early closing of shops; others the subjects of warming and ventilating, the economy of fuel; many of them have discussed and diffused useful information on sanitary matters; a few of them have classes for the study of political economy. Here is a subject of vital importance to every human being, and there is scarcely a score of towns in the kingdom where political economy has a teacher. Who can calculate the mischiefs that have been done by the best intentioned persons ignorant of its guiding truths? There is a limit to Parliamentary power. Parliamentary legislation cannot be enlightened unless the people are themselves enlightened. Neither the Government nor the Parliament can now do much—I might almost say anything—for the benefit of the people without the co-operation of the people. Reforms, sanitary, educational, commercial, fiscal, are obstructed by the inertia of public opinion. They would be rapidly developed if the public mind were prepared for them by the systematic action of Institutes ventilating them in all parts of the Kingdom. There is no necessary connexion between social reforms and political controversies. The latter are wisely excluded from the Institutes.

In many towns the Institutes have held with success occasional Exhibitions of Art and Industry, of natural and manufactured objects. This mode of teaching by the eye is invaluable. Some people are apprehensive that by holding too many exhibitions we shall give an undue stimulus to the production of novelties. The Society of Arts, however, knows that there can be no improvement except by novelties, and that its own function for one hundred and five years has been, and still is, to promote improvement by encouraging the novelties, which it calls inventions, that are good, and by discouraging those alone which are bad.

People say to me, "Why do you take such an interest in those Institutes, and make such a fuss about them? We do not see that people are made more religious by the study of science and art." I hope that the paper which I have now read contains some reply to that inquiry. Science and Art appear to me to be necessary to be included in our national education, and by education people are helped to be religious. When the archdeacons of the diocese of Chichester became members of the Sussex Board, which is created for the purpose of co-operating with us, they did not act ininconsistently with their spiritual character. Mr. Best ministering in his parish church at Abbott's Ann, and Mr. Best establishing the Hants and Wilts Association, and labouring zealously in its work, is one and the same minister of religion worthy of double honour. Canon Girdlestone, the energetic educator of children in the principles of the Church of England, is the same Canon Girdlestone that, as Chairman of the Local Board at Bristol, brings invaluable qualities to its aid. The Prelate who preaches the Word to multitudes in the neighbouring Abbey and in his Cathedral, and in the humbler structures which serve as churches in Bethnal-green, is the same Bishop of London who is President of the evening classes at Crosby Hall—but I forbear. We cannot all be preachers of the Gospel, but we may all obey its precepts, and endeavour to do to others what we should wish them, if our places were reversed, to do to us. I have endeavoured to show what the Society of Arts' Union of Institutes is, what its several constituent parts are doing, and what they might be led to do. It can hardly be doubted that the Institutions deserve the respect and support of the public, *i.e.*, of the individuals who form the public. If any one then who has done me the favour to listen to me, or who may read this paper in the *Journal*, should be of opinion that the usefulness of the Institutions, already great, might be very greatly increased if they were fully developed in the manner suggested, I hope that the Society of Arts may rely on his active co-operation in the promotion of its somewhat difficult enterprise.

DISCUSSION.

Sir Thomas Phillips said, although it was not his intention, when he entered the room that evening, to address the meeting, it had been intimated to him that it was desirable that, in the first instance, some member of the council should offer a few observations upon the excellent paper they had heard read; and when he saw around him so unusually large an audience, he could not doubt that the subject was one of peculiar interest. He was sure that all felt greatly indebted to his friend, Mr. Chester, not only for the labour he had bestowed in presenting to the meeting a history of the educational branch of the Society's operations, but for laying before them, in the clear manner he had done, the ends which the Society contemplated. And they would feel not the less indebted to him when they recollected, as probably most present would do, that he was, in fact, the author and originator of the movement itself. Elementary education had, for many years past, been largely fostered in this country, and, not only had schools been very widely diffused throughout the country, and the facilities increased, but the character of the education afforded had been greatly improved; nevertheless, in the contest between instruction and labour it must be known to all who had taken part in the education of the people, that the school period was far too short. At 10, 11, or 12 years of age the child escaped from the discipline of the school, and in many instances lost altogether the advantages there acquired. The problem that was found so difficult on the part of all the friends of education was this, viz:—in what way, between school age and adult age, was the instruction given at school to be continued, and how were the influences that were produced in the school-room to be deepened and strengthened? Mechanics' Institutes, evening schools, evening classes, and other means had been devised by the friends of education to supplement the early school life of the working man's child to some extent. These perhaps had succeeded, but still they were far from satisfactory. The object of this movement—and he believed it had to a considerable extent been accomplished—was by providing for the best (because it was only the best of the children of the poor who would ultimately rise by means of any instruction or advantages offered)—by affording to the best conducted, the most intelligent, and those most desirous of carrying forward the instruction they had received, the means, largely by self-culture, and partly by the advantages given in aid of self-culture, to preserve and increase that knowledge which they had already acquired, so as not only to enable them to do their duty in the state of life in which they were placed, but to elevate themselves to a somewhat superior condition of society by the employment of those abilities and the improvement of those advantages that they might have had. Let it be observed that in this work nothing had yet been done by the government of this country, but it was altogether through the spontaneous agency of the people themselves. And let them remember, too, that this was the most difficult portion of the work, that the character of the persons by whom it was to be carried on ought to be of a superior kind to that of the mere schoolmaster. These young persons who were resolved upon the work of self-improvement were, in fact, the salt of society. It was not given to the many to succeed. There were not many George Stephensons in the world, but there would always be found a large number of average intellects, who by the devotion of their leisure time to self-improvement, and by availing themselves of the agencies by which they were surrounded, might become most valuable members of society. We were now placed in a period in the history of industry in which intelligence year by year became more important, in which mere brute force lost year by year its value, and in which this country was exposed to the competition of other countries where the artizan had large advantages supplied by the state, and was enabled to acquire that knowledge which it was our duty to assist the working man of this country in obtaining for himself. It was true that the working classes had, in their school years, the means of instruction, and the endowments of former times afforded to the rich the advantages of colleges and universities for the completion of their education and their preparation for the business of life; but the boy who left the elementary schools of the poor and went to labour, had no other advantages than those which Mechanics' and similar Institutions afforded them, and which this Society was now earnestly endeavouring to foster by means of that system of Examinations which had just been so ably described to them.

Mr. Sidney acknowledged the services rendered by the Examination system of the Society of Arts, in stimulating the zeal and gauging the value of Mechanics' and other literary institutions, but he believed he expressed the opinions of a very large class when he hoped that no further attempt would be made to reward successful students with official appointments, a course which could not but tend to corrupt and emasculate the character of our studious youth, by leading them to look to Government employment instead of to private enterprise and personal and continued exertion for success in future life. All parties in the State were agreed on the propriety and necessity of extending the means of education to the humblest classes, by schools for infants and for adults by day and by night, by Examinations, and above all, by reading rooms and by libraries, by good and cheap books; but he thought that Mr. Chester had somewhat exaggerated the value to be derived by the working classes from literary and scientific education, and had somewhat unfairly depreciated the position held by the British workman at the Great Exhibition of 1851, as compared with the foreign workman. After all, the principal part of the education of the working man must be directed to learning the business by which he was to get his living, and such literary and scientific education as he could find leisure to obtain would give him resources in reading, in writing, and conversing, in lieu of merely sensual enjoyments. To own the truth, there were very few in any class of society who were capable of using the advantage of a scientific training however freely offered. As to the results of the Great Exhibition, the inferiority of British work lay only where the arts of colour and design were involved; wherever the work required high mechanical skill and solid workmanship, the superiority of the British workman was undoubted. Our mechanical and railway engineers, our coal miners, and our agriculturists, were the first in the world, and went or sent their work all over the world to execute undertakings too difficult for the best men of those countries where Polytechnic Schools, Agricultural Colleges, and Mining Colleges attracted all the first talent of the middle and working classes. France drew the cream of the middle classes to her engineering staff and army; Prussia absorbed in government employment the pink and flower of even the humblest classes. In England we had not been in the habit of stimulating the sons of ploughmen by offering them the dignity of beadles or the emoluments of excisemen; and he hoped we never should attempt to waste the vigour of youthful talent in the routine of Government employment, but continue to encourage young students of the working classes to look to private and personal enterprise for success in life. George Stephenson's name was frequently quoted as an example of the need of education and competition, and, perhaps, of Government rewards. He (Mr. Sidney) believed that the most important part of Stephenson's education was obtained in working for his living in the mine and at the steam engine; and that less great results would have been obtained from a school and collegiate training. Certain he was that if Stephenson had had to pass the ordeal of an English Official Board of Engineers and Miners he would never have been permitted to emerge from obscurity. In France the Government officials were the great obstructers of early railway enterprise. He thought that with more schools for children and adults, more good, useful, practical books, more reading rooms, and more free libraries, with the stimulating aid of the Society of Arts acting upon them, the work of education would be carried on without the stimulus of prize excisemen or even prize Somerset-house clerks.

Vice-Chancellor Sir William Page Wood said he had come there to receive information rather than to speak himself; and he had been much interested by the very able paper they had heard from Mr. Chester. He felt a deep interest in this subject, although he had not—(perhaps he should be ashamed to say so)—taken any active part in the proceedings of the Society in this matter. But for the last eighteen years he had been connected with a Mechanics' Institute, in which he had taken great interest, but which proved, as many others had done, a complete failure. He thought, however, the steps that were now being taken by this Society were likely to prevent the recurrence of such a lamentable state of things. That such institutions had failed was a matter too notorious for any real friend of education, who did not seek to cloak the truth, to hesitate to declare. On a late occasion, there was a conspicuous failure of a certain institution in this metropolis. He was himself connected with one of a more humble character, but which, after a long struggle, was found to be incapable of maintaining itself; and his opinion had always been, that, unless those institutions could be made self-supporting, they were really nothing worth. On that account the institution with which he was more particularly associated, not receiving extraneous aid, had become converted into an institution which was at present, he was sorry to say, the only one of its kind in London—viz., a free library. That there should be only this one free library in London, was certainly surprising. He thought there must be some great want of energy and zeal on the part of those who undertook to form libraries under Mr. Ewart's Act. Still, the fact remained that the free library of St. Margaret's and St. John's, Westminster, was the only institution of its kind in London. In the third year of its establishment it was attended by no fewer than 74,000 persons, and, whereas, during the first year, the books that were read consisted of only one-fourth solid literature and three-fourths light literature, in the last year it was found that the reading consisted of one-third of solid literature, and two-thirds of that of a lighter character. He believed it was not foreign to the present meeting to mention that, for it was a part of the business of the Society of Arts to grant to free libraries in Union with it the privilege of obtaining books at greatly reduced prices—a privilege of which his own institution had largely availed itself. He agreed very much with what had been said by Mr. Chester—that however deeply they might be impressed with the absolute necessity of combining religious education with the instruction of the child—yet he believed they might with regard to the adult enter upon a different course, not because they undervalued religious education, but because they believed that the adult was already sufficiently instructed in it. With regard to the statistics presented by Mr. Chester in connection with the Examinations, he was a little alarmed at the statement, that out of 310 candidates for Examination it was reported that those who had been the smaller number of years at school were upon the whole found to be most successful. But when he came to look at that report it was not so alarming as he had anticipated, for it appeared that out of the 310 persons there were only 26 who had been at school for less than three years. He apprehended that in those three years, if well selected, a large portion of instruction might have been instilled into their minds. Another result, which he had gathered from these statistics, was, that it was clear that these Examinations had not reached the children of the elementary schools, but that it was with the higher classes of schools they were principally dealing. They had not got to that class which formed the bulk of the population under instruction in the elementary schools, the average of whose school days, he regretted to say, was far below three years throughout the country. At the same time he felt that a vast amount of good was likely to result from these Examinations. It was an incitement to the members of Mechanics' Institutes in particular, not to allow their institutions to degenerate into mere places of amusement and recreation, as he feared was at one time too much the case, but to render them places where they could reap the fruits of the education given in their childhood. There appeared to him to be no reason why candidates for examination from the Mechanics' and other Institutions should be stigmatised as place-hunters, because the Government gave an opportunity to successful candidates to compete for appointments under Government. From all the experience he had gained, he was of opinion that, in general, government remuneration for labour was the lowest in the country, and therefore he had no fear of persons being unduly drawn from the ordinary departments of labour by the allurement of government situations. Reverting again to the subject of Mechanics' Institutes, he would say, if ever they hoped to make them self-supporting, without which he considered they were worth nothing, the best way to do it was to give the people a clear insight into the practical advantages that might result from them to their children, for in England it was found, even amongst the lowest and most depraved of society, that there was a strong desire existing to promote the interests and the welfare of their children. Moreover, the affording an opportunity of having the knowledge acquired in these institutions tested in such a manner as to be useful in after life to those passing these Examinations, was, in fact, conferring a most important benefit upon Mechanics' Institutes. One word more upon the subject of free libraries. When inquiring into the results of the working of the free library to which he had alluded in the early portion of his remarks, he ascertained that some dissatisfaction was felt that, being a free library, persons came there from other parishes. Upon inquiry, it was, however, found that 75 per cent. of the persons attending were of their own parishes; but there was one circumstance which caused him much pleasure, viz., that many persons came there from a long distance, because it was the only free library in London, and there was one instance of a working carpenter coming two or three times a-week from Gravel-lane in the City to consult a practical work on architecture. This was not a solitary instance, and was most encouraging to those who were really interested in the great cause of education. He believed the measures taken by this Society were most valuable. They would not, he was sure, wish to have it said that they were perfect, and that all their arrangements were the very best that could be adopted, but they had certainly taken a step in the right direction, and he heartily wished them prosperity in the laudable efforts they were making.

Sir J. Kay Shuttleworth, Bart., said, allusion had been made in the paper not merely to the East Lancashire Union of Institutions, but also to some opinions which he had expressed in reference to the relation which the Mechanics' Institutes of the country had to the Committee of Council on Education. He was anxious that what he had publicly stated should be well-understood by the Society, as he thought the relation which the proceedings of the Society, with respect to Mechanics' Institutes, had to the general education of the country, was deeply important. Mechanics' Institutes in the present day consisted of libraries, news-rooms, and evening schools, but the latter, fostered by the Society of Arts, and the stimulus of its system of examinations, had of late years steadily grown in importance. In Lancashire, Yorkshire, and Cheshire, there were 2,000 young men attending the evening schools of Mechanics' Institutes, which was in the proportion of 1 to 1½ per cent. of the population. If evening schools were to do any part of the work of carrying on the imperfect education of the day schools of children, the evening schools would require agencies which did not at present exist. Upon this point the recent minute of the Education Board would after a few years become of very great importance to the country. In order that that might be fully understood, he would ask the permission of the meeting to explain, as briefly as possible, the relation of that minute to the day schools of the country. At present, the day-schools were conducted by certificated masters, assistant masters, and pupil-teachers. The Government permitted elementary schools to have the benefit of certificated assistant masters in the day-schools, and thus to relieve the principal master to such an extent that he was able to teach also in the evening-school. This rendered possible the establishment of efficient evening-schools in connexion with the day-schools. What was about to happen in the history of the education of the country was this. There were at present about 16,000 pupil-teachers. The Training Colleges of the country were capable of sending out 1,000 trained masters per annum. Therefore, there was a good prospect that the Training Colleges might, in a few years, overtake the wants of the country as respected the supply of head-masters of the day-schools; and, where this was the case, young men who had passed through the Training Colleges might accept the post of assistant-masters, at inferior salaries. When that period arrived, the facilities for the adoption of this system would be great throughout the country; and in the manufacturing districts especially, certificated assistant-masters would be appointed; evening-schools would be established almost universally, in connexion with the day-schools, and taught by two masters, with voluntary aid from local agencies. Every one would rejoice if an agency of that kind was provided; and in the Government minute that system was admirably provided for, and he believed that agencies at present at work in the country, in addition to the growth of the normal-school system, would enable the Government to carry out the views they had in contemplation as to certificated masters of day-schools leading to the establishment of efficient evening schools. But it must not be forgotten that one immediate result of this would be, probably, in populous districts, to thin the ranks of the classes for instruction in connexion with the Mechanics' Institutes. Unless some other agency existed, it would be impossible to attract 20,000 young men to the evening schools in the three counties he had named. The evening schools were, to a great extent, taught by the masters of the day schools, and the effect would be to withdraw the scholars from the Mechanics' Institutes. There would be a little revolution in this respect. It would be a misfortune if Mechanics' Institutions should be injured. They were places where all parties generally united, without distinction of religious doctrine or political sect, except in some few instances. By various means, some of which were not developed, they beneficially affected the course of public opinion in their districts, and they substituted a useful and salutary form of discussion for others which might be acrimonious, anti-social, and irreligious. None of those institutions, either in their libraries, their lectures, or in any other respect, were anti-social or irreligious. They had for years past been the spontaneous results of local exertion; they had raised themselves to their present position, and would go on developing themselves if they were allowed to remain without external interference. He did not say that that was a reason why the minute of Government should be withdrawn, but he rather thought it should be rendered available in some form for the benefit of those institutions. He thought such a minute ought not to be allowed to operate to the injury of institutions at which 20,000 young men would receive evening education. Government, looking at this question, might extend the experiment of the East Lancashire Union, by granting modified aid to Mechanics' Institutes having evening schools attached to them. They would be placed more in a position of equality with the evening schools inspected by the Government, it the capitation grant were extended to them. He begged, in conclusion, to say that he had not treated this subject in a controversial spirit, but rather to enable the Society of Arts to apprehend the great importance of this minute of the Government, and to define what the operation of it would be, and also to define the relation in which it stood to Mechanics' Institutes in general throughout the country.

Lord John Russell, M.P., said, he had attended for the purpose of listening and receiving instruction, and not for the purpose of obtruding any observations of his own upon the society, but he could not refrain from expressing the pleasure he had derived from hearing the paper which Mr. Chester had read. It showed, in an admirable form, very concisely and at the same time very fully, the benefits conferred by the Society of Arts upon the general education of the country. The Society was now engaged in fostering education—not by some great and vast plans proposed by the government, and which the public had adopted; but the people of this country were doing with regard to education, what might be done with regard to many other subjects, namely, they were working out for themselves a very important and a very difficult problem; and in the course of working out such a problem, many failures must happen, many mistakes must be made, but in the end he thought they would find—being worked out by the people themselves, and aiming at an end consistent with the liberty of every person in the country, it would produce a far better system than any which the wisest legislature could have contrived. And let him say, as an illustration of what the learned Vice-Chancellor had mentioned with regard to the failure of some Mechanics' Institutions, that Dr. Birkbeck was an able man as well as a benevolent man; but, in the first place, he was disposed to think that the effort he made was premature; that the country was not prepared, at the time he proposed it, to make an effort which perhaps twenty years later would have been perfectly successful. In the next place, he thought, in the absence of all experience, some errors were made which experience alone would enable him and those who established these Mechanics' Institutes to avoid. But he mentioned this only as an instance, of which there must be many, that they should not be discouraged—either this Society or the community in general, should not be discouraged by partial failure; but, on the contrary, they should believe that in different ways they were seeking an end which would be obtained through success and through failure, through hope and through disappointment, and that it would succeed in the end better from the free and voluntary character of the effort that was made. With regard to what had been said by Sir James K. Shuttleworth upon the subject of governmental aid—in the first place, he thought they must be very cautious with regard to any further efforts that were to be made, either by the Committee of Council on Education or any other body belonging to the Government. He believed the efforts made in assisting education, and endeavouring above all to improve education—in which a high degree of honour was due to Sir James Shuttleworth, who had suggested more improvements in preliminary education than any other person had done—he believed the proposals made by the Government in the system of aiding voluntary effort, and at the same time providing and declaring that religious instruction must form part of the education of the people in general—he believed that system was a right system to adopt; but when they attempted to carry it further, there were many difficulties to be overcome. First with regard to local distribution, they found that in the large towns it was easy to open schools, and to have many schools of different kinds of religious communities; but with regard to the south and west of England they found a great many parishes in which they could not collect fifteen children of both sexes in a school. It was not likely that good schools could be formed in such parishes as these; and one would naturally recommend that several parishes should be joined—but they found that those who had charge of the education in these parishes, although much in favour of education—were nevertheless opposed to such a combination for that purpose. It was not only that the clergyman of the established church differed from the dissenting minister, but the clergyman of one parish differed from the clergyman of another parish. Therefore whilst it was easy to say—educate all the people—yet these apparently small difficulties, which the theoretical speculator would brush away as a mere cobweb, were effectual stops to education in the small parishes in the south and west of England. But then he felt very much with the gentleman who had recently spoken (Mr. Sidney), that this country had better continue to maintain that jealousy of Government interference, which was one of its special characteristics. There were various evils connected with Government interference. In the first place, the people themselves became jealous of that interference; in the next place, it should be recollected that there were two questions inseparably connected, namely, the giving of large sums of money as Government grants, and the laying taxes upon the people to support those grants; and accordingly they found, instead of combining those two things in their minds, people on the one hand were apt to say, when they heard that a certain educational institution was to be assisted by Government, "What an excellent, benevolent Government it is: how anxious to encourage education." But when, on the other hand, it was said that those grants so largely increased the Civil Service Estimates as to render it necessary to put on an additional 2d. of income-tax, the observation made was, "What an extravagant Government this is to go on taxing us without stint to indulge some visionary object of benevolence." It was therefore well, he thought, not to raise this question too much, and the Government must surrender the praise of being the most benevolent Government in the world, with a great many parental feelings for the children of the State, in order not to incur the blame of being a Government so extravagant that it placed undue burdens upon the people. This brought him back to the old text—that here as well as in Mechanics' Institutes—in the National Schools, in the British and Foreign School Society, and in that with which the Vice-Chancellor had to deal—the Charitable Trusts of the country—there should be an endeavour to make all these work for the improvement of the people, rather than to trust to assistance from Government. He believed that plan in the end would answer best, for he felt sure that everybody would be far better satisfied, because all would feel that, whatever good was done was due to themselves, and not to extraneous aid. He thought the plan adopted here, of having those various societies connected with one central Institution, was likely to be very beneficial, and he believed that introducing these young men to the Examinations, and giving them certificates and prizes, was a most important means of improving the education of the people. Let him say one thing more with regard to the general effect of these exertions. Every person with whom he had spoken of late years on this subject, and even up to the present moment, told him that there were a number of skilled workmen in this country whose wages were very high, who earned from 15s. to 20s. and 30s. per day, but whilst their skill as workmen was admirable, and whilst the reward was commensurate with that skill, they did not find that their restraint over their physical appetites, or that their moral elevation was at all commensurate with their skill in their callings. There were too many of them, who, having in two or three days' work in a week earned a very large sum, instead of putting by a portion—instead of clothing better the members of their families—instead of buying books that might be useful as well as entertaining—spent the whole of that sum in physical enjoyments; and when the day or the year of distress arrived, many of them were selling the furniture of their houses, and obliged often to resort to the poor-house for their daily subsistence. The only way in which to cure this great evil, which they must all lament, was to give them objects, to give them thoughts, to give them occupations of mind, which would teach them that there was something better—that there were duties to be performed which must not be neglected—that there were restraints to be put upon the passions, which religion and morality must enforce upon every well-constituted mind; and, finally, to convince them that if their minds were cultivated their whole condition would be improved, they would have reason to feel greater independence—reason to feel themselves as being raised in the scale of existence—as being more fit to perform their duties in this life, and to appear before their Creator in the next. He believed that all educational efforts tended to that end; and feeling that this Society was engaged in an important work, he desired to give it his cordial support.

The Chairman said it was his duty, in closing the discussion, to invite the meeting to give their thanks to Mr. Chester for the paper with which he had favoured them. He was sure they would all agree with him that he was entitled to their thanks, not only on account of the nature of the paper itself and the subject brought before them, but also for the special way in which he had treated it, and which had drawn forth so interesting a discussion as that which they had just listened to. Mr. Chester had drawn their attention to many of the difficulties of this subject. He (the Chairman) was not going to occupy their time by discussing again those difficulties, but he might be permitted, in summing up, to call their attention to one or two of them. In the remarks they just heard, they had had the true answer to those who would say that Mechanics' Institutes and such institutions as they were now considering had anything of an irreligious tendency. That man was raised in the social scale, and better able to perform his duties as an immortal being, by such teaching as he there received was, he believed, now generally acknowledged. He was, however, afraid of some little misunderstanding as to one or two remarks that had been made on this subject. Indeed, he was not sure that the remarks of Mr. Chester himself might not lead to misapprehension of the objects of these Institutions; and, perhaps, the observations of the learned Vice-Chancellor, which he cordially agreed with in the main, might be liable to some misunderstanding also. It was no part of the arrangements of the Society of Arts to exclude from fellowship with it those numerous institutions which held this opinion—that even in Mechanics' Institutes there ought to be a distinct religious education. This Society wisely opened its doors to all attempts which were made to educate and improve young men after they had left school. They wished that all should work upon their own principles; and he, for one, holding rather strongly that all education ought to be founded upon a religious basis, was quite content to leave this to be proved by the results of the various experiments that were being made. In the list which had been shown him of the persons who had distinguished themselves in the Examinations of this Society, he had been struck with the fact that several of them came from the Young Men's Christian Institutes, and some from the Evening Classes at Crosby Hall; all of which, as they knew, were conducted upon distinctly religious principles; not that they were the better perhaps for that, because, after all, the religion of a society did not consist in the particular religious creed which it professed, but in the personal religion of its members, and he believed the best plan was to assist all honest and hearty efforts, whether made upon one principle or the other; and he was sure that ultimately the best system would prevail. There was another point upon which some misconception might perhaps arise. There seemed to be some little dispute, if he might use the term, between two persons so eminent in the cause of education as Mr. Chester and Sir James Shuttleworth, as to whether they ought to encourage teaching in evening schools in the places used for day schools, or whether they ought not rather to uphold the Mechanics' Institutes as a means of adult education. For his own part he believed there was full room for both. His own experience in the north led him to think that there was a real difficulty which had not yet been adverted to, but which ought not to be passed without notice, namely, that there were two sets of persons who received this adult education, and it was not easy to bring them together. Those who worked at a manual occupation all day in their fustian jackets, had a distaste to being brought into juxtaposition in the instruction-room with those whose lighter occupation and better salaries enabled them to be better dressed. There would always be a difficulty in bringing the two classes together in carrying on the work of education, and he thought this was a point which should be attended to in the consideration of the subject of adult instruction. There was one more point to which he would allude. As to the instruction given, he thought the failure in some institutes had been occasioned by giving too much prominence to lectures. He thought it was better to give instruction which partook more of the character of the education imparted in the colleges and higher classes of schools. Upon the subject of prizes for successful examinations, he thought the mere certificate of merit was not of much value. What they must do, was to show that some palpable benefit as to a man's future career resulted from the examinations. With regard to government patronage he thought the placing at the disposal of the Society a few nominations to compete for appointments was likely to exert a very inconsiderable influence, and certainly one not to be dreaded. It now only remained for him to propose that those present should tender their hearty thanks to Mr. Chester for the interesting paper he had read.

A vote of thanks was then passed to Mr. Chester.

The Secretary called attention to specimen of a material called the Gishurst Compound, which has been found efficacious for preventing and destroying the red spider and other insects found in plants. Specimens of bread, entirely made by machinery, were also placed on the table. An account of the process will appear in a future number of the *Journal*.

The Secretary announced that on Wednesday evening next, the 23rd inst., a Paper by Mr. John Leighton, F.S.A., "On the Library, Books, and Binding, particularly with reference to their Preservation and Restoration," would be read.

GIANT TIMBER.

The following is extracted from the *Builder*:—

Our attention has been called to an importation of three cargoes of mast-pieces of timber now discharging in the Commercial Docks, Rotherhithe. The sizes both in length and square, are so unexampled as to be worthy of record. One vessel, indeed, the Bostonian, of 1,000 tons, has spars of a magnitude that we believe were never before made timber of commerce; they run from 90 to 140 feet in length, and from 26 to 40 inches square. One mast contains 28 loads, weighing about 33 tons, and is (as are most of them) nearly as straight as a ruler, and without a knot; being 139½ feet long and 39½ inches square. When felled, it measured 316 feet to the branching top, and for 150 feet was without any branch at all. It was squared to 41 inches; but was of necessity reduced to 31½ inches to admit of its entering the ship's bowport. The quantity of timber in this enormous tree is worthy of notice; call it 300 feet by 41 inches square, it would contain 3,502 cubic feet, or 70 loads 2 feet as squared, or 116 loads as round timber. It would saw into 2,050 boards 41 inches wide, half an inch thick, and 12 feet long; or, allowing about twelve per cent. for waste in sawing, 1,800 boards 36 inches wide, half an inch thick, and 12 feet long. If laid out quite close it would cover 72,000 square yards, or 1 acre, 1 rood, 2 chains, 6 poles, 19 yards; or, allowing for unavoidable interstices, about two acres and a quarter. It is difficult to imagine a tree half as high again as the Monument before it branches out. These masts are considered worth £12 to £14 per load, and we understand are secured for the British navy; and it is said that the longest may perhaps be raised as a flag-staff at Windsor. We are indebted for these particulars to Mr. N. Gould, F.S.A.

JAPANESE COINS.

The following results of an authorised assay of Japanese coins will be interesting at the present time, considering the intercourse which has been recently opened up with that country:—

	No.	Weight in decimals of an ounce troy.	Proportion in 10,000 parts		
			of Gold.	of Silver.	of Base alloy.
Copangs	1	·3621	5,680	4,310	10
	2	·3626	5,670	4,320	10
	3	·3658	5,668	4,325	7
½-Copangs	4	·1826	1,910	8,046	44
	5	·1820	1,986	7,980	34
⅛-Copangs	6	·0532	2,949	7,016	35
	7	·0535	2,970	7,016	14
	8	·0537	2,981	7,010	9
	9	·0534	2,969	7,005	26
	10	·0530	2,922	7,034	44
	11	·0534	2,982	7,010	8
	12	·0535	3,026	6,970	4
	13	·0539	3,142	6,854	4

The values of the metals in each coin are, on an average, as follows:—

	Copangs.		½-Copangs.		⅛-Copangs.	
	S.	D.	S.	D.	S.	D.
Gold	17	6 ·225	3	0 ·228	1	4 ·307
Silver	0	10 ·181	0	9 ·575	0	2 ·424
Intrinsic Value..	18	4 ·406	3	9 ·803	1	6 ·731

Calculated at the Mint Price of Gold, £3 17s. 10½d. per ounce, and of Silver £0 5s. 0d. ditto.

Home Correspondence.

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SIR,—In reporting my observations on Mr. Simmonds' paper on the Utilisation of Waste Substances, I am made to say, that a German gentleman took out a patent for producing paper from leather waste, and that "the plan was to remove every substance except the *gelatine*." Now, what I really said was, that a German gentleman, named Lichtenstadt, took out a patent in the latter part of the year 1857, and that his plan was to remove every substance except the *fibrous* material, which he then converted into pulp in the usual way, and which might be used with rags, or other paper-making material, or alone.

The patent, I find, is numbered 2,426 A.D. 1857, and the specification will, doubtless, be found amongst the publications of the Commissioners of Patents in the reading-room of the Society.—I am, &c.,

F. W. CAMPIN.

Feb. 12, 1859.

ELECTRO-ZINC DEPOSITS UPON ENGRAVED COPPER-PLATES.

SIR,—M. Joubert would appear, by his communication on this subject last week, to have overlooked the fact of the intimate union of these two metals when brought into chemical contact, whereby a brass is produced, sometimes of great hardness.

The copper tool used in soft soldering zinc becomes often so hard as to strip off the teeth of a good file when applied to dress the point of the tool, which soon becomes unserviceable on such work.—Yours, &c.,

HENRY W. REVELEY.

ALUMINIUM.

SIR,—I have read in the *Journal of the Society of Arts*, of February the 4th, the interesting paper which you delivered before the members of that Society on the 2nd inst., and the discussion which followed. And I send the following, believing it will explain the apparent discrepancy, which was noticed by Mr. Thompson, between my statement and that of M. Figuier.

In my paper, read before the College of Dentists, on the 5th of last October, I stated, that "cast" aluminium, when disconnected with other metal, will stand the action of the saliva of the mouth upon it; but that "wrought" aluminium will not stand that action. Therefore, if the mouthpieces for musical instruments (spoken of by M. Figuier) were made of "wrought" metal I can readily understand that they would be chemically affected by the action of the saliva of the mouth, as that gentleman describes. Or if they were made of "cast" aluminium, and connected with an instrument made of any other metal, so that the saliva of the mouth could act upon the two metals in connection, a galvanic action would ensue, and the oxidation of the aluminium mouthpiece be the result. But if a musical instrument could be made entirely of "cast" aluminium, mouthpiece included, such would not be the case. Or if a "cast" aluminium mouthpiece were attached to a wooden musical instrument it would not be liable to oxidation.

The mouthpiece referred to by M. Figuier, if attached to a metal musical instrument, would be acted upon by the saliva of the mouth in a similar way to artificial teeth with side springs, as described in my paper already referred to; consequently, there is a perfect agreement between that gentleman's statement and that which I had previously advanced.

Those dentists who have tried aluminium as a basis for artificial teeth have failed, because they have confined themselves to the use of "wrought" metal instead of "cast," which, as I have before stated, will not stand the action of the saliva upon it; whereas "cast" aluminium will. And it is only in consequence of my having used "cast," instead of "wrought," aluminium that I have been successful in bringing it into use for dental purposes.

You speak of aluminium having been used instead of gold for stopping teeth. But it must from necessity become "wrought" metal by being beaten into leaves, or, if it could be cast sufficiently thin, the very act of compressing it into the cavity would render it wrought metal and destroy its property of chemical resistance.

M. St. Claire Deville is mistaken in saying that water at any temperature will not effect aluminium. I do not think cold water does affect it, but if it be boiled in water for some time its surface becomes covered with a black oxide; so far as my experience goes, however, water must be very hot to effect this change upon it.

Mr. Thompson also spoke of my using tortoiseshell to insulate the spring work. I did so at first, but am now using insulating mineral tubes, which are cast in the piece; these I find to be more effective and simple. I have now been wearing in the mouth a piece mounted in aluminium constantly night and day since the middle of December, 1857—nearly fourteen months—without any visible alteration; therefore I have every confidence in its durability; but its perfect tastelessness, harmlessness, and extreme lightness, are its great recommendations for dental purposes. I am, &c.,

G. F. HARRINGTON.

Ryde, Isle of Wight, Feb. 5, 1859.

Proceedings of Institutions.

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Halifax Mechanics' Institution. — A numerously attended *soirée* took place at this Institution on Tuesday, the 14th December, at which Sir Charles Wood, M.P., presided. In opening the proceedings, he said he desired to express the deep interest he had always taken in such institutions. He thought that it could not but have struck even the most casual observers, to what an extent during the past autumn the topic of popular education had occupied the attention of the people of this country. Meetings had been held in Liverpool, Manchester, York, and other places, attended by people showing the liveliest interest in the subject, and addressed by persons of great eminence and distinguished by their talent, their position, and their intellectual acquirements, who had spoken with a zeal and earnestness which had not been witnessed at any former period. After speaking of the rapid advance that had been made during the last few years in the work of political improvement, he remarked upon the extent to which the ablest, most energetic, and most active friends of the people in this country had directed their attention particularly to the improvement of that which concerns the bodily welfare of the people—the improvement of their dwellings, the improvement of the drainage of their towns, the supply of water, and all those matters which improved the physical condition of the people, at the same time taking the greatest pains to form Mechanics' Institutions and other similar societies for the improvement of the education and the mental culture of the great body of the people. He thought this was a proof that in England they were determined to carry forward, in every respect, that system and that progress which he hoped would raise them all in time to a much higher point of civilisation and cultivation than they at present enjoyed. The spread of education, so far from promoting the separation of the various classes of society would tend to unite them, promoting the happiness of all sections of the community, from one extreme of the social scale to the other. He thought, moreover, that whatever might be the national system of education, whether it were fuller or more complete than at present or not, there was ample scope as well as a great call, for institutions like the present. Sir Charles then pointed out the importance of the acquirement of foreign languages, for which that institution would afford facilities, and defended the introduction of a high class of light literature into the library. He urged the importance of the constant perusal of the daily press, saying that he believed it was perfectly necessary that in a free country like this all the intelligent portion of the community should have access to papers of every description and advocating all classes of opinions. He had no fear of any mischief that might be done by publications of that kind. He had the most perfect confidence in the good sense and judgment of the people of this country, and though there might be some mistaken and misled for a time, yet, if they had an opportunity of seeing both sides, the result, he had not the least doubt, would eventually be a sound, good, and correct judgment. He concluded by assuring the assembly that it had afforded him much pleasure to take part in the proceedings of the evening, and that it was his wish to see such institutions extended as far as possible, because he believed they were likely to assist in raising the people of this country to that point of civilization, and moral and intellectual, as well, he hoped he might add, as of religious improvement, to which it was to be desired that they might ultimately attain. Mr. Frank Crossley, M.P., and other gentlemen afterwards addressed the meeting.

Sheffield Church of England Educational Institute.—The report for last year states that the numerical attendance has been unprecedentedly large. The highest number of names on the books, in any quarter of the year 1857, was 251. In the first quarter of the present year, the number was 264; in the spring quarter it was 202; in the autumn quarter, now closing, it reached 464. This last record, high as it is, is however not to be regarded as representing the whole number desirous of becoming students in the last quarter. The overcrowded state of the rooms, and the unmanageable size of the classes, rendered it necessary to give notice, through the newspapers, that no more could be admitted. It is evident that the expansion of the Institute's operations is limited solely by lack of money and lack of room. There appear to be plenty of men willing to teach, and of people longing to be taught; what the Institute wants is, plenty of money to enable it to provide suitable means for their instruction. It is estimated that for £2,000 a handsome building might be erected on some vacant ground in St. James's-street, which would not only afford ample accommodation for the classes, but also contain a large lecture room, capable of seating 400 persons; and it is proposed that this building should be devoted to religious and educational purposes, in connexion with the Church of England in Sheffield. The degree to which, during the last three years, the number of teachers and the range of subjects have increased is most remarkable. Three years ago the Institute began with twelve classes, conducted by nine teachers. The number of subjects was eleven. It has now sixty-five classes, conducted by nearly seventy teachers, among whom are ten gentlemen of learned professions. There are classes for the study of the Bible, the Greek Testament, the Latin Classics, French, German, Arithmetic, Book-keeping, Euclid, Algebra, Trigonometry, Chemistry, and the Physical Sciences generally. History, Geography, and Political Economy are taught on the advanced methods suggested by the Society of Arts; while there are also Classes in Grammar, Composition, Definition of Words, and General Literature. There is an Elocution Class, as well as classes for Singing and Shorthand. The report says that such of the students as are engaged on the higher subjects, are working with a view, immediate or remote, to the Examinations of the Society of Arts. The Library continues to be a source of much interest, more than 2,500 volumes having been taken out during the year.

PARLIAMENTARY REPORTS.

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SESSIONAL PRINTED PAPERS.

Par. No.

Delivered during the Vacation 1858.

411. Railway and Canal Legislation—Report and Evidence.
445. County Courts—Return.
478. Stipendiary Judges—Return.

512. Registry of Deeds (Dublin)—Treasury Minutes.
523. Mauritius—Returns.
524. Vancouver's Island—Return.
527. Army Prize Money—Account.
487. Manchester Model Secular School—Correspondence.
507. Paper—Returns.
515. Metropolitan Board of Works—Report.
68 (VII). Trade and Navigation Accounts (31st July, 1858).
362. Accidents on Railways—Report.
452. Friendly Societies—Report of the Registrar.
464. Education—Return.
481. Hong Kong—Return, Part 1.
518. Colonels—Return.
521. Chinese, &c. Emigrants—Return.
416. East India (Railways)—Report.
486. East India (Territorial Revenues and Disbursements)—Accounts.
522. New England Company—Return.
385. Railway and Canal Companies—Return.
505. Oxford University—Copies of three Ordinances.
382. East India (Transport of Troops)—Report and Evidence.
441. Savings' Banks—Report and Evidence.
344 (1). Harbours of Refuge—Supplemental Appendix and Index.
401. Land Transport Corps—Report and Evidence.
461. Colonization and Settlement (India)—4th Report.
98 (A VI). Poor Rates and Pauperism—Return (A).
495. Income Tax, &c. (London)—Return.
431. Railways—Returns.
488. Steam Vessels—Return.
489. Newspapers, &c.—Return.
398. 418, 438. Contracts (Public Departments)—3, 4, and 5 Reports.
442. River Thames—Report and Evidence.
412. Destitution (Gweedore and Cloughnaheely)—Report and Evidence.
498. Army (Purchase of Commissions)—Return.
499. Courts Martial—Returns.
501. Land Registry Offices—Returns.
429. Stade Tolls—Report and Evidence.
68 (VIII). Trade and Navigation Accounts (31 August 1858).
490. Civil Service Commission—Return.
98 (A VII). Poor Rates and Pauperism—Return (A).
513. District Union Schools—Return.
381. Bank Acts—Report and Evidence.
491. Assessed Taxes—Account.
413. Tribunals of Commerce—Report and Evidence.
474. Navy and Army—Detailed Accounts of Receipt and Expenditure.
520. Boots (Army)—Return.
387 (1). Divine Worship in Populous Districts—Index to Lords' Report.
68 (IX). Trade and Navigation Accounts (30th September, 1858).
492. Property and Income Tax—Return.
482. Consular Service and Appointments—Report and Evidence.
98 (B). Poor Rates and Pauperism—Return (B).
63. Population, &c. of Parishes—Return.
98 (A VIII). Poor Rates and Pauperism—Return (A).
380. Woods, Forests, and Land Revenues—36th Report of the Commissioners.
473. Health of the Royal Navy—Statistical Report.
519. Flogging (Army)—Return.
450 (1). Proceedings on Private Bills—Index to Lords' Report.
68 (X). Trade and Navigation Accounts (31 October, 1858).
98 (A IX). Poor Rates and Pauperism—Return (A).
416 (1)—East India (Railways)—Index to Report.

MEETINGS FOR THE ENSUING WEEK.

Mon. ......London Inst., 7. Rev. Henry Christmas, "On Shakespeare's Historical Dramas."
British Architects, 8.
Medical, 8.
United Service Inst., 8½. Mr. R. Taylerson, "On Taylerson's Diagonal Principle of Iron Shipbuilding."
Tues. ......Royal Inst. 3. Professor Owen, "On Fossil Mammals."
Civil Engineers, 8.
Medical and Chirurg, 8.
Zoological, 9.
Wed. ......United Service Inst., 3. Mr. F. A. Abel, "On Gunpowder: its Manufacture in England and on the Continent, and on the Means employed for its Ignition."
London Inst., 3. Mr. P. W. Brayley, "On Meteorology."
Society of Arts, 8. Mr. John Leighton, "On the Library, Books, and Binding, particularly with reference to their Preservation and Restoration.
Geological, 8.
Archæological Assoc, 8½.
Thurs. ...Royal Inst., 3. Prof. Tyndall, "On the Force of Gravity."
Philosophical Club, 5½.
London Inst., 7. Mr. George Scharf, jun., "On Early Christian Art, as Exhibited in the Catacombs and Churches of Italy.
Numismatic, 7.
Antiquaries, 8.
Philological, 8.
Royal, 8½.
Fri..........United Service Inst., 3. Admiral Fitzroy, "On Meteorology."
Royal Inst., 8½. Prof. Faraday "On Schonbein's Opposite Oxygens."
Sat. ......London Inst., 3. Mr. Thomas A. Malone, "On the Metallic Elements, and their Principal Salts and Alloys."
Royal Inst., 3. Dr. W. A. Miller, "On Organic Chemistry."
Royal Botanic, 3¾.

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, February* 11, 1859.]

Dated 22*nd December*, 1858.

2920. R. Clegg, Islington, F. Angerstein, Kennington, and G. Ferry, Hackney—Improved mechanism for imparting reciprocating motion to machinery, and more especially pumps.
2924. M. Renney, Queen-street, Dublin—Imp. in bridges.

Dated 8*th January*, 1859.

68. E. Cobbold, Hendon, Middlesex—Imp. in instruments for writing and marking, and for the preparation of certain substances for conversion into instruments for writing and marking, and for the application to useful purposes of certain products, arising from preparation aforesaid.

Dated 19*th January*, 1859.

160. P. A. Sparre, 50, Chancery-lane—Imp. in the manufacture of paper, suitable for bank-notes, cheques, bills, and similar articles.

Dated 21*st January*, 1859.

190. C. O'Hara, 4, Upper Seymour-street, Hyde-park—Imp. in propellers, for propelling steam-boats, ships, and vessels.

Dated 22*nd January*, 1859.

202. B. Templar, Bristol—Imp. in umbrellas and parasols.
204. M. Henry, 84, Fleet-street—Imp. in machinery or apparatus for manufacturing corks and bungs.
206. T. W. Rammell, 16, Spring-gardens—Imp. in atmospheric propulsion, and the structures, tubes, machinery, and apparatus applicable thereto.
208. R. Barter, St. Ann's-hill, Blarney, Cork—Imp. in heating and ventilating buildings, and in apparatus connected therewith.

Dated 24*th January*, 1859.

209. W. C. Homersham, Adelphi-terrace, Strand—Imp. in floating gridirons or stages for repairing ships or other vessels.
210. R. Mushet, Coleford, Gloucestershire—Imp. in the manufacture of cast steel and iron.
211. R. Mushet, Coleford, Gloucestershire—An imp. in the manufacture of cast steel.
212. R. A. Brooman, 166, Fleet-street—Imp. in pumps. (A com.)
213. J. Laubereau, Paris—Imp. in air engines.
214. J. Smith and W. H. Smith, 8, Upper Fountain-place, City-road—Certain imp. in manufacturing paper, and in producing watermarks, patterns, figures, letters, and devices thereon, and in the construction of the mechanism employed therein.
215. J. Savory and W. R. Barker, 143, New Bond-street—Imp. in bottles for medicines and poisons.
216. J. Fowler, jun., Cornhill, R. Burton, Kingsland, Middlesex, D. Greig, New Cross, Kent, and J. Head, Newcastle-on-Tyne—Imp. in agricultural implements, and in apparatus used for hauling agricultural implements by steam power.
217. A. Warner, 31, Threadneedle-street, and W. Tooth, Sumner-street, Southwark—Imp. in the manufacture of iron and gases for such and other uses.
218. J. Proger, 13, Trinity-street, and D. Davies, Stuart-street, Bute Docks, Cardiff—Imp. in lanterns used on board ship to signal to the steersman.
219. Right. Hon. James, Earl of Caithness, Hill-street—Imp. in parts of the permanent way of railways.
220. M. Swan, Henstridge-villas, St. John's-wood—Imp. in ballasting ships, applicable also to the extinguishing fires on board ships.
221. W. Tasker, jun., Waterloo Iron Works, near Andover, Hants—Imp. in ploughs.

Dated 25*th January*, 1859.

223. J. H. Johnson, 47, Lincoln's-inn-fields—Imp. in machinery or apparatus for cutting and shaping wood. (A com.)
224. R. Bodmer, 2, Thaives-inn, Holborn—Improved resin and resinous substances. (A com.)
225. W. Cutts, Oldham—Imp. in the manufacture of bobbins, spools, and cop tubes, and in the machinery employed therein.
226. W. Hodgson and H. Hodgson, Bradford—Imp. in machinery or apparatus for preparing and spinning wool and other fibrous substances.
227. J. White, Finchley, Middlesex—Imp. in means or apparatus to facilitate respiration under water, or under the influence of fire, or in other situations where an artificial supply of air may be required, part of which improvements is also adapted to facilitate movement in or upon the surface of water.
228. W. Andrews, 30, Cornhill—Imp. in electric telegraphs.
229. F. J. Jones, Aldermanbury—An imp. in shirt fronts.
230. H. Brecknell and J. Dyer, Bristol—Imp. in cocks and valves.
231. I. Woodcock, Commercial-street, Spitalfields—Imp. in barometer and thermometer dials.
232. B. J. Spedding, 9, Cross-street, Birkenhead—Imp. in apparatus for generating and regulating gas, and for impregnating the same with volatile hydro-carbon fluids.
233. C. G. Kelvey and W. Holland, Rock Ferry, Birkenhead—An improved escapement for chronometers and other time-keepers.

234. W. E. Newton, 66, Chancery-lane—An imp. in life preserving vests. (A com)

Dated 26th January, 1859.

235. W. R. Alexander, Glasgow—Imp. in furnaces and apparatus for the manufacture of sugar, and for the consumption or prevention of smoke.
236. I. Hammond, Winchester—Imp. in breech-loading fire-arms, and in cartridges to be used therewith.
237. O. Hussey, Baltimore, U.S.—Imp. in the construction of ships' blocks.
238. D. Graham, Wapping, Middlesex—An improved method of driving centrifugal machines. (A com.)
239. J. Wells, Keighley, near Yorkshire, and W. Crouch, Sutton, near Keighley—An improved coupling for railway carriages and analogous uses.
240. F. C. C. Paulsen and A. Alsing, Emmett-street, Limehouse—Imp. in preparing beverages usually called punch.
241. M. Fernandez, 2, Devonshire-square, Bishopsgate-street Without—Imp. in straw and hay cutters.
242. J. Kerr, 17, Bedford-terrace, Trinity-square, Southwark—Imp. in the construction of revolving fire-arms.

Dated 27th January, 1859.

243. J. Mercer, Liverpool—Imp. in the process of currying leather. (A com.)
244. W. Ager, Rhorsburg, U.S.—Imp. in machinery for cleaning rice.
245. T. Hartshorne, West Bromwich, Staffordshire—An improved metal to be used for making journey brasses for mills, rollers, forges, and all kinds of shafts and machinery, and also for shipping and for bearings for shafts and journey brasses in general.
246. E. Dixon and H. Whittaker, Preston—Imp. in apparatus used in weaving textile fabrics.
247. J. Meacham, Birmingham—Imp. in pens and penholders.
248. H. D. P. Cunningham, Bury, near Gosport—An imp. in the rig of ships or vessels.
249. H. Rawson, Leicester—Imp. in machinery for preparing wool and other fibrous substances.
250. J. Buckingham, Walworth-common, Surrey, and G. Salt, Saltaire, near Bradford—Imp. in the construction and adaptation of drawing and other rollers employed in drawing and compressing fibres, which improved construction of rollers is also applicable in compressing fabrics.
251. E. T. Hughes, 123, Chancery-lane—Imp. in the manufacture of biscuits. (A com.)
252. G. F. Bradbury, Oldham, and J. J. King, Glasgow—Imp. in certain apparatus applicable to sewing machines.
253. W. Crowther, Leeds—Imp. in the manufacture of prussiate of potash or soda, and in recovering a useful material therefrom.
254. J. Gathercole, Bath-terrace, Camberwell New-road—Improved machinery for manufacturing envelopes and paper bags.

Dated 28th January, 1859.

255. I. Zacheroni, Liverpool—An improved mode or method of preventing the escape of smoke into the atmosphere, and in the construction of chimney "pots" or "tops" for curing smoky chimneys.
256. W. Robertson, Manchester—A new apparatus for propelling boats on canals, rivers, and lakes of moderate depth.
257. G. Bartholomew, Linlithgow, N.B.—Imp. in shoes for horses and other animals requiring such shoes, and in the means of attaching the same to the feet.
258. C. E. Amos, the Grove, Southwark, and J. Francis, Bangor, North Wales—Imp. in water pressure engines, and their application to pumping machinery.
259. F. Prince, 138, New Bend-street—A new breech-loading gun.
260. W. Yates, Mary-street, Bromley—Imp. in furnaces.
261. R. Griffiths, 69, Mornington-road—Imp. in regulating the pressure of steam in steam-boilers, and in preventing the accumulation of deposit therein. (Partly a com.)
262. H. Watson, High Bridge Works, Newcastle-upon-Tyne—Imp. in the manufacture of Knotter-plates, used in the manufacture of paper.
263. A. Barclay, Kilmarnock, Ayr, N.B.—Imp. in obtaining and distributing or applying electricity and magnetism.

Dated 29th January, 1859.

264. L. Leisler, Glasgow—Imp. in extracting metallic copper from the pyrites residuum of vitriol works, and from other substances. (A com.)
265. J. Lane, West Bromwich, Staffordshire—New or improved machinery for the manufacture of screws, and for tapping nuts for screws.
266. J. MacKenzie, Saint Martin's-le-Grand—An improved method of operating ventilating valves, especially applicable to ventilating gas burners.
267. J. Marino, Stockholm—An inodorous closet or commode.
268. G. Davies, 1, Serle-street, Lincoln's-inn—Imp. in apparatus applicable to measuring, regulating the pressure of, and consuming gas for illumination. (A com.)
269. H. Grissell, Regent's Canal Iron Works, Eagle Wharf-road—Imp. in machinery for moving ships or vessels on slips or inclined ways.
271. J. Meacham, Birmingham—Imp. in apparatus for clasping and closing books, purses, reticules, and other similar articles, and for retaining and securing paper documents, letters, bills, and other memoranda.

Dated 31st January, 1859.

272. T. P. Smith, Stanmore, Middlesex—An apparatus for guiding or directing the pen or pencil in writing or drawing.
274. J. Raywood, Wentworth, Yorkshire—Certain imp. in the construction and method of working sewing machines.
276. J. Robertson, Glasgow—Imp. in details, by which motive force is transmitted in machinery.
278. J. P. Booth, Cork—Imp. in ventilating ships.

Dated 1st February, 1859.

280. J. Grimond, Manchester—Imp. in the manufacture of hearth rugs.
282. J. Hosking, 5, Catherine-terrace, Gateshead-on-Tyne, and T. Cock, Cleator-Moor, near Whitehaven—Imp. in furnaces or fire places.
286. M. A. Walker and R. Walker, Birmingham—Certain imp. in the manufacture of percussion caps, and in the apparatus for effecting certain parts of the same.
288. T. P. Purssglove, Battersea, Surrey—Imp. in barometers.
292. C. Crockford, Holywell, Flintshire—A mode or method of producing metallic sulphates.
264. E. H. Bentall, Heybridge, near Maldon, Essex—Imp. applicable to machinery for grinding or pulverizing various substances.

Dated 2nd February, 1859.

296. E. E. Allen, Brompton-row—Imp. in stereoscopic apparatuses.
298. R. Lancaster, Orrell, near Wigan—An improved mode of ventilating coal and other mines.
300. J. R. Cooper, Birmingham—Imp. in breech-loading fire-arms.
302. J. Buncher, Birmingham—Imp. in the manufacture of eyes or fastenings for stair rods.
304. J. Hirst, jun., and J. Hollingworth, Dobscross, Saddleworth, Yorkshire—Imp. in the construction of power looms.
306. H. F. Kemp and W. Skey, Root Distillery, Louth, Lincolnshire—An improved food for cattle.

Invention with Complete Specification Filed.

325. J. M. E. Masson, Rue des Fossés, St. Thomas Evreux, France Imp. in apparatus to facilitate working under water.—4th February, 1859.

WEEKLY LIST OF PATENTS SEALED.

[*From Gazette, Feb.* 8, 1859.]

February 8th.

1812. T. G. Messenger.
1839. A. J. Paterson.
1847. F. J. Manceaux.
1931. J. H. Johnson.
1947. W. Kempe.
1969. J. H. Johnson.
1973. M. A. F. Mennons.
2003. A. Guye.
2057. W. E. Newton.
2187. M. Hipp.
2411. W. Hall and A. Wells.
2653. T. Spencer.
2757. W. Robertson and J. G. Orchar.
2905. J. Soutter.
2953. M. A. F. Mennons.
2957. J. Shaw.

[*From Gazette, February* 11, 1859.]

February 11th.

1824. J. T. Pitman.
1826. R. C. Gist.
1840. R. Jobson.
1842. R. Jobson.
1844. R. Jobson.
1845. W. B. Nortcliffe.
1848. C. L. Light.
1850. J. Petrie, jun.
1851. T. Worth and H. Spencer.
1855. J. Cartmel.
1857. J. Holt.
1858. J. Smith and S. A. Chease.
1860. S. C. Lister and J. Warburton.
1879. J. Luis.
1885. A. Pilbeam.
1918. W. H. Harfield.
1954. J. D. Brabazon.
1988. A. V. Newton.
2001. G. T. Bousfield.
2111. T. Vicars, sen., T. Vicars, jun., T. Ashmore, and J. Smith.
2321. C. West.
2633. C. F. Vasserot.
2701. C. Burrell.
2720. C. Bedells.
2776. E. A. Servier.
2839. G. F. Wilson.

[*From Gazette, Feb.* 15, 1859.]

February 15th.

1866. P. E. Chappuis.
1868. L. A. Herrmann and E. I. E. Herrmann.
1872. W. E. Evans.
4875. J. Norton.
1876. F. Shaw.
1901. F. F. Delpy.
1993. G. Price and W. Dawes.

Patents on which the Stamp Duty of £50 has been paid.

[*From Gazette, Feb.* 8, 1859.]

February 4th.

416. S. F. Cox.

February 5th.

310. M. L. Parnell.
327. J. E. Duyck.
343. J. Elce and S. F. Cottam.
354. W. H. Harfield.
358. G. T. Bousfield.

[*From Gazette, Feb.* 11, 1859.]

February 7th.

452. J. S. C. Heywood and G. Lloyd.

February 8th.

356. H. Bessemer.
359. R. A. Brooman.

February 9th.

345. J. W. Duncan.
366. S. Fox.

[*From Gazette, Feb.* 13, 1859.]

February 11th.

363. J. Mills.
380. W. McFarlane.
385. E. Morewood & G. Rogers.
403. H. J. Hyams.
405. A. V. Newton.

February 12th.

390. E. Deiss.